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JULY 15 1891

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Among the contents of next week's issue (No. 178) will be the following articles:

The Red Oak. (Illustrated.)
Editorial.

New Orchids.
By R. A Rolfe.

Notes on North American Trees.—XXVI.
By Professor Sargent.

How We Renewed an Old Place.—XIV.
By Mrs. J. H. Robbins.

The paper will contain an illustration of a Red Oak (*Quercus rubra*), from a photograph.

GARDEN AND FOREST.

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The Planting of Home Grounds.

"THE union—a happy marriage it should be—between the house beautiful and the ground near it," says a writer in a recent number of *The Garden*, "is worthy of more thought than it has had in the past, and the best ways of effecting that union artistically should interest men more and more as our cities grow larger and our lovely English landscape shrinks back from them." This writer, we may divine from the initials signed to the article, is Mr. William Robinson, whose essays and books have already had an excellent influence upon contemporary gardening art in England. We are not surprised, therefore, to find that, in speaking of the ground near a country house, he should advocate treating it in a manner which will harmoniously unite it with the landscape beyond, thus making a beautiful whole of the near and distant surroundings of the house. This ground he calls "the garden," although this term is more generally understood as meaning something in the nature of an enclosure, where plants are grown without any thought for harmony of general effect, or for the proper connection between all the spaces which the eye can compass in a single view. Taking "garden" to mean all the grounds close to the house—the "home-grounds," as is sometimes said—he explains that there are situations, as on the hillsides of Italy, where the nature of the spot prescribes a formal, semi-artificial garden. But, he continues, "the lawn is the heart of the true English garden, and as essential as the terrace is to the gardens on the steep hills"; and, in general, these words are true for America as well. There is less need in America than in England to protest against formal gardens where such lawns, with appropriate framings and backgrounds of foliage, should exist. In this country we are not very fond of designing "geometrical gardens," even in those occasional cases where some natural or architectural peculiarity would sanction their existence; and it would be difficult to discover American homes where "on level ground the terrace walls cut off the view of the landscape from the house, and, on the other hand, the house from the landscape." Nevertheless, there are other errors in garden design into which we are as apt as the English to fall, and we should be doubly anxious to avoid them, as our architects seem to be succeeding better than the English in creating that "house beautiful" which must be the centre of the complex ultimate picture. That is, if Mr. Robinson's taste in such matters can be trusted, "most of the houses built in our time," in England, "are so bad that even the best garden could not save them from contempt"; but, though we often build bad houses too, and though our average efforts are less ambitious than those of Englishmen, many of our country homes are so good architecturally that one thinks, with a pang, how much more beautiful they would be were their "home-grounds" properly arranged and planted.

How to plan and plant such gardens as these is the problem to be considered. We will suppose that the house has been advantageously placed, that it looks out upon a beautiful landscape, and that the intervening space is of such an extent and character that it can be made an harmonious link between the house and the landscape, giving the house a fitting environment when seen from a distance, and the landscape a fitting foreground when seen from the house. The two questions then are, How to plant, and What to plant.

As regards the manner of planting in such cases much has already been said in these columns, and it may suffice briefly to repeat that there should, if possible, be a wide extent of lawn or lawns to give repose and unity to the picture, with surrounding plantations, varied in mass and sky-line, to enframe the lawns and connect them with the landscape; that open outlooks should be left to reveal the most beautiful portions of the distance, while disagreeable objects are masked from view; and that roads and walks should be as few and as inconspicuous as convenience will permit. If a good landscape-gardener is employed, these arrangements will be planned and their preliminary portions will be executed without much trouble to the owner. But in settling the question what to plant in completing them the landscape-gardener, in America as in England, often seems in need of guidance as well as the owner, and when his views are just, the owner too often interferes with their development or adds inharmonious details of his own as the years go by.

Mr. Robinson is partially right when he says that most people who care for gardens (still taking the word in the wider sense he gives it) suppose that they are made for plants, and that "if a garden has any use it is to treasure for us beautiful flowers, trees and shrubs." Yet this idea of a garden's function is too narrow, and devotion to it often deforms even small gardens which have no purpose except to surround the house agreeably, still more often deforms larger ones which serve as a foreground for a beautiful prospect. A garden is, beyond question, a place where beautiful plants are to be fostered; but it is also an entity which should be beautiful as a whole and in harmony with its surroundings. And, however well planned, its beauty may be spoiled, and a look of painful artificiality may be given it if its contents are injudiciously selected. Therefore we must dissent from Mr. Robinson when he says, "The true use and first reason of a garden is to keep and grow for us plants *not* in our woods, and mostly from other countries than our own." The true use of a garden is to grow for us beautiful plants of such a kind that their association will form a beautiful whole, beautifully in keeping with the house and the surrounding landscape. In fitting it for this use we are at liberty to get our trees, shrubs and flowers where we will, provided we introduce none which, by a discordant note, will mar the general effect, which must be determined by the character of the local landscape. To be harmonious, and therefore beautiful, a garden, over which we see the Berkshire hills or the valley of the Hudson, must be evidently an American gar-

den, just as one in the valley of the Thames must be English, and on the southern shore of France must have the mixed, semi-tropical character peculiar to the Mediterranean coast. To secure this proper local character, local plants are almost essential for the groundwork; and then, to give variety, interest and a true garden-like air and charm, exotics should be mingled with them. But these exotics should never be chosen for their rarity or novelty alone, or even for their intrinsic beauty, and still less, as is too commonly the case, for their mere conspicuousness. First of all they should harmonize with the other plants about them, and the novice may well hesitate before dipping deeply into those stores of foreign plants which are now so vast and varied and accessible. His choice will not be narrow, if, in addition to native plants, he selects such as have come from lands with climate akin to our own. In using these last he will be following Nature's own example. Here in America she does not confine herself to growing plants which were originally American. She takes up vegetable immigrants as hospitably as our civilization takes in human immigrants, and assimilates them as quickly and naturally. Who would suspect the White Willow in New England, or the Pawlonia in the woods of Maryland to be an exotic? And who sees anything inharmonious or strange in the aspect of the Ailanthus-trees which, mingling with the native Elms, shade the rustic streets of Nantucket? Nature chooses which exotics she will grow for what we may call scientific reasons, but the artistic effect of her results is invariably good. And man should learn from her how to make a similar choice, taking a wider liberty, of course, when he is planting a garden than when he is planting a forest, but never forgetting that, in a garden such as we are now describing, he should grow together only such plants as will look well together. There are exotic flowers which look as natural, as appropriate, in a garden as the Marguerite of Europe looks in our meadows. But there are others which seem entirely out of place as parts of an American garden which has any design—any character at all.

This is not meant to disparage the cultivation of rare or novel or conspicuous plants, whether native or exotic. Many refined persons take the keenest delight in individual flowers and collections of plants for their own sake, and without any reference to their relation with the surrounding scenery. But in grounds like those now under consideration, there will be ample space to grow them in locations specially set apart for them where they will not injure the main picture formed by the general environment of the house and the encircling landscape. As regards the grounds, the "garden" in its wider sense, it will assuredly be most beautiful, interesting and enjoyable when both native and foreign plants have been used in tasteful combination. But if confined to one of these classes we should probably lose as much by adopting Mr. Robinson's idea, that the first reason for this sort of a garden is "to grow for us plants *not* in our woods and mostly from countries other than our own," as we should if we adhered exclusively to the plants of our own country. Using these alone the planter will miss a thousand chances for securing beauty and variety, but he will not run the risk of the greater misfortune of producing a garden full of beautiful plants, but not a beautiful garden, after all, nor an appropriate environment for his house, nor a suitable foreground for the landscape beyond.

From a note on another page of this issue it will be seen that the Trustees of Public Reservations, the body incorporated under an act of the last Legislature of Massachusetts, for preserving beautiful and historical tracts of land within that commonwealth, has been organized, and is ready for work. Our readers need not be told that we heartily commend the objects of this association, for it has been one of the steady purposes of Garden and Forest since its foundation to aid in forming public taste and guiding public sentiment in this direction. The plan adopted seems business-like and feasible, and now that the machinery is in competent hands and fairly under way, it is a proper time to say that the success of the enterprise in its early stages is due very largely to the energy and intelligence of Mr. Charles Eliot, the secretary, who really assumed the burden of carrying the measure through. It ought to be said also that the successful inauguration of such a movement in a community is an indication of a high order of enlightenment. The people of Massachusetts have reason to be proud of it, and they should encourage and promote it in every reasonable way. It is to be hoped that public-spirited men and women in other states will be prompt to organize similar corporations until it becomes a settled policy throughout the country to preserve the natural beauty which we have inherited, and to protect from defacement and ruin, and for the inspiration and enjoyment of our children's children, all places about which patriotic and historic memories cluster.

Mr. John Robinson, in his interesting and valuable series of papers on the "Trees of Salem," now being published in *The Salem Gazette*, suggests, in speaking of our two poisonous species of Rhus, the only poisonous plants of our northern flora, a few simple rules which can be easily remembered, and which will aid persons in recognizing these plants, and at the same time prevent a needless fear of the many beautiful flowers and berries of the woods and meadows. These are his rules:

Never put any portion of any plant in the mouth unless it is certainly known to be wholesome.

Have no hesitation in handling any plant that has beautiful or attractive flowers, berries or fruit of any kind, for the two poisonous native plants have inconspicuous greenish flowers, mostly under the leaves, and later small bluish white berries close to the branches or hanging from them.

Beware of gorgeous red and yellow autumnal leaves on shrubs and climbing plants which are not known to be harmless. Our two poisonous native plants display the most brilliant autumnal colors of any species in our woods and by-ways.

The poisonous Sumach resembles a group of young Ash-trees.

The poisonous Ivy resembles the harmless Woodbine. Its leaves, however, have but three leaflets, while those of the Woodbine have five.

Dijon.—I.

THE city of Dijon lies in a charming valley at the foot of the hills of the Côte-d'Or in one of the most fertile and beautiful regions of France. It is said to have been founded in the early days of the Roman empire. Upon its history, however, I have no purpose to dwell, nor yet upon its buildings, which, despite the generally modern look of the place, still make it interesting to the artist and the antiquary. Its parks are less famous, but well deserve the notice even of those travelers who come in great numbers during the summer, but, intent on reaching Switzerland as quickly as possible, usually do no more than sleep a night in the huge hostelry, called the *Cloche d'Or*, which, in its unlikeness to the inns of most French provincial towns, seems a prophecy of the tourist-ridden land toward which they yearn.

It is only a short walk from the hotel, and only a step from the railway station, to the gardens called *L'Arquebuse*, which formerly served the local Society of Arquebusiers as their place of exercise. We are not told when they were first established, but it is known that, in the year 1591, Henri IV. here joined in the sports of the Dijonais musket-men. Their disposition seems to have been the result of chance rather than design, and although they contain some symmetrical features, they give, as a whole, a naturalistic impression and form a pleasant, verdurous, shady and not unpicturesque resort.

Close to *L'Arquebuse*, and separated from it only by a little stream, lies the Botanical Garden, founded by Legouz de Gerland in 1772. It covers a wide area, and, in addition to the regular beds where the smaller plants are grown—among them being 300 varieties of the Vine—it contains a park-like space through which flows the little stream, forming in one spot a miniature lake, the general design suggesting the fact

that at the end of the last century "English gardens" were becoming popular in France. Some fine cut-leaved Alders grew by the bank of the stream, and on the edge of the pond large Taxodiums were throwing up their "knees," as they do in the Florida swamps. Many other beautiful specimen trees attracted the eye; and though Weeping Willows can hardly be called beautiful, historical sentiment was stirred at the sight of a large example which had grown from a twig brought many years ago by Montholon from St. Helena.

Their plants, not their design, give these two gardens their interest; but the one which forms the central feature of the newer part of the town is as charming an example of the artistic treatment of a small urban pleasure-ground as I remember to have seen. The intersecting streets here leave a long and rather narrow isoceles triangle. The point of this triangle is occupied by the Place Darcy, but the greater part is filled by the park. At its broader end the ground lies high above the surrounding streets. Here a wide space has been laid out with a music pavilion in the centre and with a graveled surface that may be covered by chairs upon occasion, but closely shaded by many regular rows of fine Plane-trees, concentrically arranged near the pavilion and in rectangular lines at a greater distance. From this space the ground descends steeply toward the street on three sides, turfed, planted with graceful groups of low trees and shrubs, and everywhere encircled by a gilded railing of good design. On the fourth side, however, which faces the Place Darcy in the point of the triangle, the rapid descent of the ground is utilized to form a fine series of marble terraces with cascades rushing out beneath them and falling into rectangular basins set with aquatic plants, flights of steps flanking the cascade on either side and being flanked themselves by the lateral slopes of turf, which in this part end at gravel walks running near the outer railing, well shaded and furnished with comfortable seats. The level of the street is reached before we get to the limits of the park at its narrower end, and here we find the usual arrangements of paths, grass-plats and seats very charmingly managed; and hence, as we look out on the Place Darcy, we find that even its open space has been brought into the general scheme, an oval of grass and shrubbery lying at a little distance from the borders of the park, then at a greater distance a tiny triangular plantation, fitted to the shape of the contracting triangle, and finally, closing the long converging perspective, a triumphal arch, which stands across the entrance of the Rue de la Liberté.

The view of this lower portion of the park and of the Place Darcy, seen over the cascades from the terraces above, is extremely impressive, considering the small scale of the whole; and a word should also be given to the arrangement of the shrubberies on the lateral slopes of the park. Whether seen from above or seen from the street outside, one cannot but admire the skill with which they have been disposed; now running outward till they reach the railing with their luxuriant masses of drooping foliage, and now curving inward to leave a wide stretch of grass next the street, or, here and there, room for a little path, a graveled spot and a big marble bench whence the lively panorama of the street may be viewed at once. The harmonizing of the formal upper portions of the park (which, by the way, is properly called the *Promenade du Château d'Eau*) seemed to me very skillful, and, taken as a whole, this pleasure-ground would, I think, convince any observer that formal and naturalistic elements may be happily joined, and that, in a small urban park, the presence of formal features is extremely desirable. No wholly naturalistic design could have given this park so great a serviceableness or so much dignity, or could have harmonized it so well with the surrounding rows of buildings; of course, its designers were lucky in having a piece of ground so varied in surface to work upon, but had they not been artists they would not have profited by their opportunity. It was easy, but not pleasant, to fancy what the place might have been in the hands of an unskillful designer.

New York. *M. G. Van Rensselaer.*

How We Renewed an Old Place.

XIII.—EVERGREENS IN SPRING.

I KNOW few things more depressing than the sight of conifers in May, when every deciduous tree is putting its best foot foremost and giving promise of a fine crop of leaves. The Pines and Spruces and Firs which have gladdened our eyes all winter, with their fine green masses relieved against the snow, or standing up bravely from the brown grass, in rich contrast to the barrenness around, now begin to show the sere and yellow leaf. The March sun and winds have burned and browned their tips, the winter storms have buffeted their branches and torn great gaps in their outline. Their new shoots are all hidden under a little tight white or yellow, or brown nightcap that looks dried and wizened, as if no promise of life lurked underneath.

When the snow melts sufficiently for one to walk abroad among his plantations, he views them with a feeling akin to despair, so unlikely do they seem to recover themselves. Some branches are entirely dead, the tops of others are winter-killed, a few have turned copper-color from root to crown, and beside the bright green of bursting buds and springing grass, the best of them look worn and dingy by contrast.

Not until the middle of May do they pluck up their spirits, pull off their bonnets, and show that their apparent deadness resulted from the fact that they take their season differently from their gayer neighbors, and wear their winter furs, however rusty and inappropriate, far into spring, while all the others have come out in their new clothes of brightest hue. Some years June will be here before they condescend to put out the green tassels which are their first adornment, but through the month of roses they do their prettiest, and hang out their banners with the best.

Some of the authorities recommend the month of June as the most desirable for transplanting evergreens, but my experience would lead me to the conclusion that with them, as well as with hard-wood trees, the period before the bursting of the buds is more satisfactory than the time when they have already begun to swell. Seasons vary so decidedly that a few warm days may hasten the new shoots, and they may be three inches long before you think of going for trees, so that they droop discouragingly after transplanting, and sometimes never brace up again. This is particularly the case with Pines, which have a way of drooping their little brown heads despairingly, and refusing to stiffen, in which case, if they cannot be freely watered, they are sure to die.

This year the warm days in April so quickened all vegetable life, that, when we set forth in the middle of May in search of new trees for the hill, we found to our surprise that the green tassels on some of the trees were as long as one's finger, which gave us a pang lest we were already too late for the best satisfaction.

However, as there had been already some six weeks of unprecedented dry weather, and there were signs of rain in the atmosphere, it seemed that if there was any chance at all, now was our time. We accordingly arranged for a morning among the Pines, and, accompanied by a big farm-wagon to bring them home in, we wended our way along the winding country roads, until we came to where the young trees abounded, and we could select our specimens.

There is little doubt that the stocky, bushy trees of close, heavy foliage, not more than two or three feet high, are the most likely to live and do well, but there are days when one's ambition outruns one's discretion, and, revolting at the slowness of the growth of the little ones, he desires to realize his forest immediately, if only for one summer, and so, like a child who plants his sand-garden with blooming flowers, ventures on a load of trees five or six feet high, in hopes that, after making a brave show for a few months, they will be aided by some happy freak of nature to take root in earnest.

But planting Pines on a dry hillside is like investing in a lottery—the success of the enterprise depends wholly on the sort of weather that immediately follows, and who can reckon with that? Talk of the vicissitudes in the life of a broker—what are his uncertain and incalculable quantities compared to those with which the farmer and gardener have to deal? A broker can abstain from buying bonds and stocks if he will, but the farmer has to plant when the time comes, and take his chances, and for surprises the weather can give points to Wall Street any day. With the largest experience and judgment you can no more reckon securely on the coming down of rain than of Bell Telephone, or Calumet and Hecla.

No sooner are one's trees planted than he becomes a bear upon the weather market, but this summer old Probabilities has made a corner with the bulls, and kept rain up persistently, so that the wisest calculations have gone agley; and if Paul plants, and Apollos declines to water, what then?

To return to our expedition. There was an easterly tang in the air, a smell of rain that promised well for the morrow, though in the shelter of the trees all was warmth and sunshine, and bursting buds. Upon the rocks the Lady's-slipper was waving its rosy blossoms, tempting us to add a few roots of it to our shady garden, where it has thriven well. The Beeches and Birches were full of crumpled leaflets, Anemones were blooming by the wayside, the Oak-tops were reddened with the flush of early leaf-buds, the forest was astir. Along the fences

ran the busy chipmunks, saucily chattering with their bushy tails trailing behind them. The wood robins were singing in the thickets, and the thrushes challenging us from wayside bushes. In northern Maine one hears always in summer the tender song of the Peabody bird in such places, but here it occurs but seldom, and I missed it from the woodland sounds, of which the air was full. The Witch-hazel stared at us with its wicked-looking eyes, and the Hemlocks hid themselves behind the Alders.

When at last we came to the clearing, we found Pines in plenty, but, unfortunately, the soil was rocky, and the trees were hard to dislodge, and did not come up with as good a ball of earth as in the sandy hill where we had found them before; but we packed them well away in the cart, with moss about their roots, and a rubber blanket to keep off the sun, and pretty soon the wagon was nodding with trees four or five feet high, closely jammed together, and Birnam Wood was on the march for Dunsinane.

The hill had been dug the day before, and some two score holes prepared for the new-comers, so that by noon-time those of the first load were all firmly wedged into their beds, to be staked and tied later, to prevent their rocking with the wind, which gives them at present quite the air of a paddock of frisky young colts, carefully hitched to prevent their getting away.

That night there was a brisk and most encouraging shower, and the next day, after the rest of the holes had been filled with a second load of Pines, there came down quite a respectable rain, so that we greatly plumed ourselves upon our foresight in having got in our trees in the nick of time, just as the drought "broke."

But, alas, for the prescience of man, and for our corner in Pines! We mulched them all well with sea-weed, to keep in what moisture we might, and waited confidently for more rain; but no rain came! Two weeks more of dry weather ensued, many of the green tassels hung sadly down, a cold, dry wind blew, twisting and turning them in every direction, and mercilessly whipped the branches about, giving the poor things a cruel foretaste of what they are likely to encounter as time goes on. If the new trees look about upon their well-rooted neighbors they must be struck with the havoc made upon them by the north-west wind. It is always the north-west side of a tree that is brownest and thinnest, and which shows the most broken branches, and the greatest number of withered, copper-colored spines.

Not until May 29th did the rain come down in earnest, too late for any but the most healthy of the Pines to reap the benefit of its invigorating freshness, and they still have a long hot summer before them.

To show the importance of moisture to a Pine, I will add that among the trees brought, there were about a dozen that had no ball of earth attached to them, and reached here with perfectly bare roots. Knowing it was useless to set them on the hill in this condition, they were all planted in a very wet place at the foot of it, which is kept as a nursery for decrepit and rootless trees. If from anywhere we receive a tree poorly provided with roots, or of drooping and unhappy aspect, or if we bring one home that looks unpromising, into that moist spot it goes, and never a tree has perished there yet, no matter how forlorn a specimen it was when it went into the ground. This nursery is called the Tree Hospital, and we find a year in it is a cure for most of the ailments that roots are heir to.

In this last experiment, the ten trees planted there, though quite the worst of the lot, never have shown a sign of wilting through all the dry weather. Their tassels stand up straight and stiff, of a clean bright green, and, though so unpromising to start with, will probably in the end leave the others far behind. Even the Hemlocks, so troublesome on the lawn, thrive in this low and sheltered spot, where we have finally sent the worst of them for repairs. I have been told by one who knows, that what the Hemlock cannot abide is the March sun, which does mischief, while the blaze of summer is harmless to it.

I was shown one day at the Arnold Arboretum, near Boston, the north side of a hill, steep and rocky, but clothed with giant Hemlocks from its lofty summit to the burbling beck at its base. No nobler sight can be imagined. I entered this forest at twilight, and I found it a temple, solemn and silent. The majestic trunks rose from their rocky base at wide intervals, climbing one above the other to the crest of the lofty eminence they crowned. Their close-knit branches, far overhead, formed a dense canopy through which the failing light came dimly, as befits a temple. So wild, so sylvan a spot, within the limits of a great city, can be found in no European park, however magnificent. It is unique and singularly imposing. On the southern slope of that hill no Hemlock grows, showing that what this noble tree demands for full development is shade and coolness, and shelter from summer winds, which burn and blight. That glimpse of ancient woodland, ages old, will always linger in my memory as a link between the bustling present and the silent past. The busy city presses around it, the hum of traffic is near. You step aside from the highway, pass a gate, cross a tiny brook that tumbles as carelessly at the foot of the hill as if it were racing through the wilds of Colorado, and you enter a domain apparently as remote, venerable and silent, as when the Indian was the sole occupant of Shawmut, and found his way through the trackless forest to his hunting-grounds. A little path worn by the foot strays along beside the laughing stream; other paths may lead over the hill, but in the dimness I failed to see them, and the solitude seemed unbroken. Night was falling, the air was chill, the murmur of the leaves far above was barely audible, the impression was indescribably solemn and church-like, as if the aisles of some great cathedral were there stretching away into the shadowy distance, full of mystery.

Stately and strong the old trees stood, as if they might be as eternal as the rocks and hill, and beautiful they were in their silent majesty, uplifting their venerable heads to the gray evening sky which had domed over them for centuries.

On an opposite hill a grove of young evergreens was springing up.

"That, too, will be fine in a hundred years," said the Director, as we passed out of the great gate; and, with a thought of my baby-forest at home which, perhaps, in a century or two, may be worth while, I went away grave but rejoicing, for I had seen a noble sight.

Hingham, Mass. *M. C. Robbins.*

The Weeds of California.—II.

AFTER the general sketch already given, the more important weeds of California may be discussed in detail, under their respective orders, in the usual sequence.

Of the *Caryophyllaceæ*, the most universally diffused and troublesome member is *Silene Gallica*, which seems able to withstand the most severe aridity attained in the lowlands of California, at least in the central portions of the state. *Stellaria media* is among the most persistent of summer weeds in cultivated vineyards and orchards; while in spring; *Spergula arvensis* takes possession of the moister grounds in the Coast range as well as in the great valley. *Mollugo verticillata* is seen sporadically, but is not as troublesome as in eastern corn-fields.

Of the *Papaveraceæ*, the *Eschscholtzia Californica* maintains itself somewhat tenaciously in pastures, but hardly in regularly cultivated ground. Yet, in grain-fields, where its spring bloom has been prevented by cultivation, it will very commonly recoup itself by a copious autumn flowering, and thus it forms large areas of flaming orange on the outskirts of growing towns, where the ground has ceased to be cultivated with regularity.

Of the *Malvaceæ*, almost the only member that is really a weed is the *Malva parviflora*, although a few others are locally complained of. This, the "Malva" par excellence, regarding the extirpation of which many newspaper articles are written. It is at home in the heavy black clay or "adobe" soils of the Coast range, where it will grow to four and five feet in height, under favorable conditions; but on roads it will form decumbent, wheel-like masses, resembling those of its eastern congener, the *M. rotundifolia*. Its seeds, borne in the greatest profusion, will germinate with the most surprising readiness, even when the plant is killed quite green; the seedlings will be found coming to the surface from the depths of the soil-cracks in midsummer, and mature an abundance of seed under the most discouraging conditions, It is one of the most persistent weeds the California farmer has to fight, and its extirpation from ground once well stocked with it seems almost hopeless. Some have recommended it as a forage plant, but few cows will touch it so long as anything else is in sight.

The *Geraniaceæ* are prominently represented by the *Erodium cicutarium* and *E. moschatum*, both commonly known as alfileria or alfilerilla, and both widely diffused. The first-named, however, the one that has been carried even to the remotest districts of the state, is distinctively the species possessing value as a forage plant. The *E. moschatum* is so distinctly of musky flavor that, like Anthoxanthum among the grasses, it is eaten only in limited quantity by any animal, as a flavoring; an alfilerilla pasture once overrun with the musky species ceases to have much value; and in heavy, rich

soils the more valuable kind is often completely run out by the other. In light, sandy soils the *E. cicutarium* is more likely to hold its own. Its long, red tap-root will then descend for moisture to the depth of several feet, and its leaves will keep green when everything else that is of value as forage is dried up. The rosettes formed by its radical leaves lie close to the ground in winter, and resist even heavy frosts without injury. Both plants are regarded as marks of a rich soil; and in such soils the task of keeping them in check is indeed a serious one, for the seeds will continue to germinate in the driest and hottest times of midsummer, after the land is "laid by"; and the costly operation of hoeing alone can master it at that season. The propagation of the alfilerilla as a pasture plant is rendered difficult by the nature of the seeds, with their long, spirally coiled awns (styles); and in certain sandy soils of south California its spread is sometimes arrested by the red ant, which gathers the seeds in its burrows, leaving conspicuous piles of the awns outside, around its hills.

Oxalis corniculata is locally a very persistent weed, resisting the summer's drought to an extraordinary degree; but it is not generally distributed, though more common in southern than in northern California.

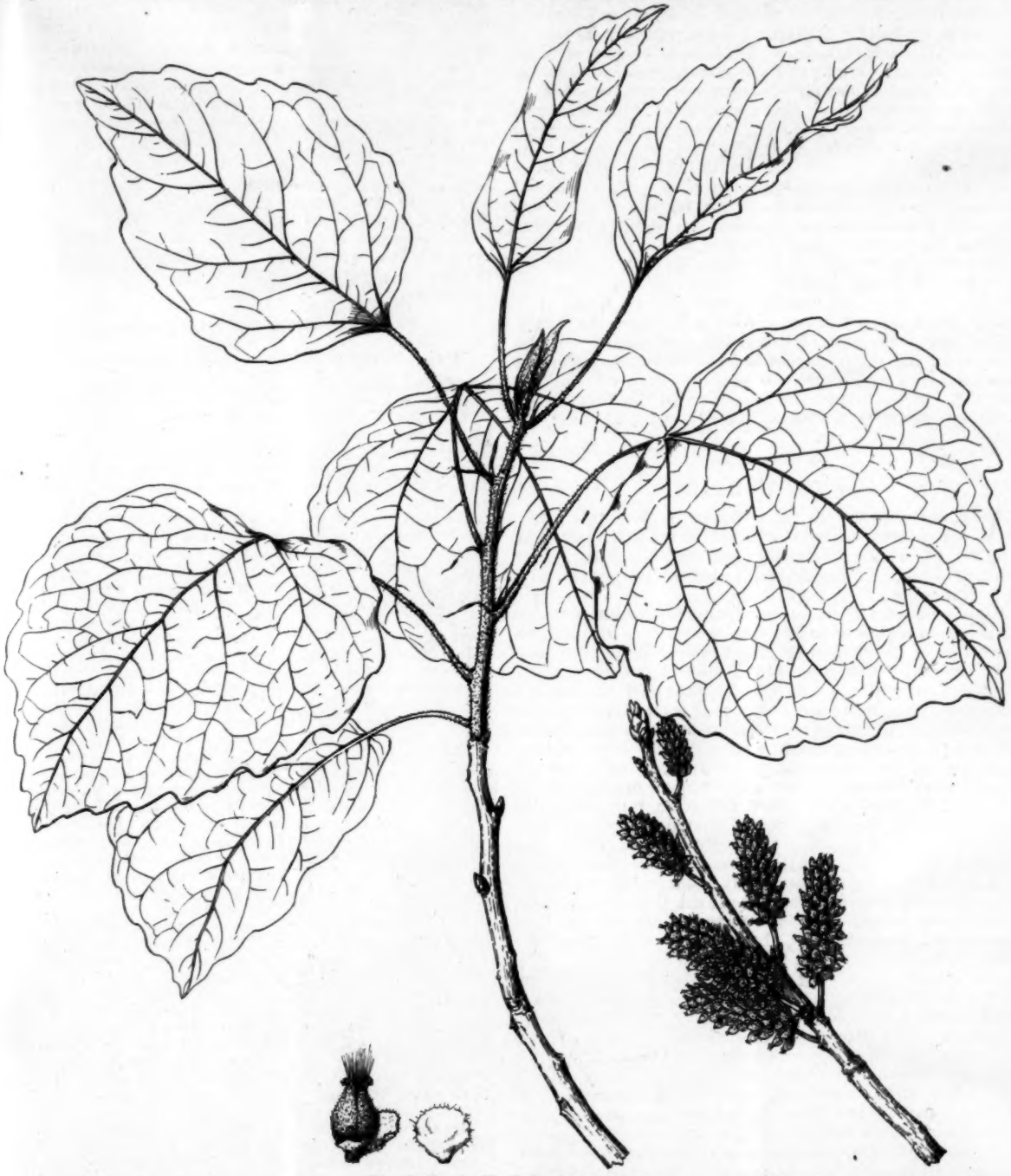

Fig. 56.—Populus Monticola.—See page 330.

The western Poison Oak, or Sumac (*Rhus diversiloba*), is a very persistent invader of pastures on which it formed part of the original growth, and keeps sprouting up from fragments of root-stocks remaining alive in the soil for years. In company with the Brake Fern (*Pteris aquilina*) it is usually the last of the native vegetation to be subdued by cultivation, both in the Coast range and in the foot-hills of the Sierra Nevada.

University of California. *E. W. Hilgard.*

New or Little-known Plants.

Drymophlæus olivæformis.

THIS is one of about a dozen species of Arecoid Palms peculiar to tropical Australia, New Guinea and several small islands adjacent. The genus is closely related to the true Ptychospirmas and Pinangas, and it resembles them in having unarmed, thin, elegant stems, which often flower in cultivation when only a few feet in height, and continue to flower annually. Drymophlæus is scarcely known in cultivation outside botanical collections, although most of the species, the one here figured in particular, are ornamental and of convenient size for pot-culture in ordinary stoves.

D. olivæformis, Mart., is a native of the Moluccas, where it forms a slender stem from fifteen to twenty feet in height, with a spreading head of pinnate leaves. The Kew plant, from which the accompanying photograph (see page 331) was made, is about fourteen years old, and at present its stem is three feet high, its leaves three feet long, and the wedge-shaped pinnæ are about five inches wide at the apex, the upper margin being jagged like a fish's tail. The texture of the leaves is soft and fleshy for a Palm. An inflorescence is produced annually, and the plant is about six months in maturing its fruit. The flowers are small, white monoicous, and the fruits are egg-shaped, an inch long, and colored rich scarlet. At the time when the photograph was made the fruits were at their best, and were as attractive as the brightest of flowers. Like all the Palms of this section of the order, Drymophlæus requires a tropical moist house and plenty of water at all times.

London. *W. Watson.*

Populus Monticola.

WE are able to publish a figure (p. 329) this week, made from material with which the discoverer has supplied us, of the interesting and very distinct Poplar found in Lower California in January of last year by Mr. T. S. Brandegee.

Populus Monticola * is a tree which grows sometimes to the height of eighty or ninety feet, with a stout trunk three feet through, covered with rough ash-colored bark and with ascending branches and slender terete branchlets, which are covered when they first appear with thick white tomentum, and during the first year at least with pale silky pubescence. The bark of the trees, until they are about thirty feet high, is described as smooth and light-colored, resembling that of the Aspen, and it only becomes rough on large trunks. The bud-scales, which appear to persist until the leaves are nearly half-grown, are ovate, rounded at the apex, ciliate on the margins and coated with silky white pubescence. The leaves are broadly ovate, coarsely and sinuately dentate, often acute or sometimes rounded at the apex, and wedge-shaped or nearly truncate at the base. They are conspicuously reticulate-veined, three inches long by as much broad, or often somewhat smaller, and are three-nerved from the base, the middle nerve being furnished with two or three pairs of principal veins. The leaves are silky pubescent on the two surfaces, especially on the broad nerves, and are borne on slender terete petioles two inches long and covered with thick white tomentum. The stipules are linear, chartaceous and early deciduous. The fruiting ament is an inch long and a third of an inch broad. The capsules are ovate, thickly coated with white silky tomentum, and two to three-valved. There are usually two styles united at the base; the disk is small and nearly flat; the scales are rounded, slightly sinuate-dentate, ciliate on the margin, but otherwise almost glabrous. The male flowers have not been collected.

"*Populus Monticola* inhabits," Mr. Brandegee informs us, "the high mountains of the interior of the cape region of Lower California, growing along the streams and following them into the cañons well down toward the warm lowlands. At high elevations (5,000 feet), and growing in cool, rocky gulches, it is not more than twenty feet high. At lower altitudes it becomes a large tree, nearly 100 feet high, and is a favorite support for the wild Grape-vines. The wood is of a light reddish color, and is used for making furniture.

"This Cottonwood is known by the name of Guerigo to the inhabitants, who distinguish it from the common one of the fields and gardens, called by them Alamo. The leaves and flowers appear in February, and in October all are fallen, a season of growth usual in California, but very different from the ordinary habit of the plants of the cape region of Lower California, where most of the vegetation comes forward with the summer and fall rains at the time when the Cottonwoods are losing their leaves, and appear to be preparing for the winter, which, however, never comes. The contrast between a flora dying and a flora coming into life, at the same time and in the same place, is strange and interesting. Associated with the Cottonwood in locality, and in its habit of coming forward with the new year, are the Arbutus, Rubus, Ribes, Prunus, Heteromeles, Vitis, etc., although plants belonging to northern genera do not always have flowers that bloom in the spring." *C. S. S.*

* *Populus Monticola*, Brandegee, *Zoe*, i., 274.

Cultural Department.

Stray Notes from the Arnold Arboretum.—IV.

AMONG exotic Cornels, as at present represented in the Arboretum, there are only two which possess ornamental qualities of a different character from those found in our native species, and which will repay cultivation in this country. There are some east Asian species, which are not introduced, and a few others only imperfectly known, so that there is a chance that the number of good garden Cornels may still be enlarged.

The two foreign species which can well be added to our shrubberies are the White-fruited Dogwood, *Cornus alba*, and the so-called Male Dogwood or Cornelian Cherry, *C. Mas*. The first is a spreading shrub which, in good soil, grows to the height of six or ten feet and produces slender, recurved branches covered with bright red bark. In habit and in the general appearance of the foliage and flowers, and in the color of the fruit, it bears a strong resemblance to our native red-stemmed Dogwood (*C. sericea*), and the only advantage it possesses over that species is in the brighter color of its branches in winter. In this particular it is far superior to the American plant and should replace it where the attempt is made to produce a bright effect in the shrubbery during the winter months. There is a variety of this plant occasionally met with in nurseries under the name of *C. Sibirica*, which has deeper-colored and brighter branches than any other plant which is hardy in this climate; and this, rather than the more common form, should be planted. Of the origin of this variety not very much is known; it may have been brought from Siberia or it may have appeared in some European nursery. The earliest mention of it is to be found in the catalogue for the year 1836 of the Loddiges, fifty years ago famous London nurserymen who maintained a large and very rich arboretum in connection with their business.

C. alba is widely distributed and very common in Siberia and through northern Asia, and in this country is perfectly hardy. It is, like all the Cornels of this class, easily raised from seed or from cuttings made in the summer; it grows as rapidly as any of the native species, and can be mingled with them without danger of offending the most sensitive taste or shocking the susceptibilities of those critical designers of natural landscape who sometimes find the most beautiful garden-plant out of place in the picture of silvan beauty and quietness they would create, unless from harmony of outline and of character acquired by natural selection and long association it happens to accord with its surroundings.

The Cornelian Cherry is a small tree, reaching sometimes the height of twenty feet, with slender, rigid branches forming a head of rather formal outline. It is one of the plants which cover themselves with flowers in early spring, before any of its leaves appear. The flowers are small and bright yellow; they are arranged, however, in compact, many-flowered clusters, and these, being scattered along the whole length of the branches, give to the plant, in the early days of April, a very striking and beautiful appearance. Here it is the first of the shrubs with showy flowers to blossom, the flowers appearing

almost a week earlier than those of the native Benzoin-bush, which the Cornelian Cherry resembles in general appearance at that period; that is, the two plants cover themselves with yellow flowers before any of their leaves unfold. The Cornel is, however, a more showy plant; it grows to a larger size and the flowers are of a brighter yellow. There is not much to say, however, of this Dogwood, once its flowers are fallen. The fruit, which is half an inch long, or rather more, is elliptical and bright red, and, individually, is as handsome as a cherry or a small plum. But, in this country at least, it is not produced in very great abundance, and the leaves so completely hide it that, practically, it makes no show at all, and there is nothing striking or remarkable about the foliage. One passes the plant without noticing it much, except in early spring, and its appearance leaves no lasting impression on the mind. But this, after all, is perhaps a merit, for plants without striking individuality are sometimes the most valuable, as they are available for many purposes and combinations where more distinct subjects might prove disturbing elements in a composition. The Cornelian Cherry is, therefore, a good plant to use in a garden or a shrubbery where a bright show of flowers would be agreeable in the very earliest days of spring, and where, for the rest of the season, a mass of pleasant, objectionable foliage would not destroy any of those natural and restful conditions of scenery a good garden should be made to afford.

C. Mas. is a native of central and southern Europe, and is one of the hardiest and most satisfactory of the trees of that continent which have been introduced into America. The wood has in all ages been celebrated for its strength, hardness and density, and it is from this peculiarity that the Cornels get their name of Cornus, derived from the Latin word meaning a horn. The origin of the English name of Dogwood is not so apparent. John Parkinson, who wrote voluminously and learnedly about plants in England two hundred years ago, says that the name came from the fact that the fruit of the English species (*C. sanguinea*) was so bad that it was not fit to give to the dogs. In his time the English Cornel had been called Hound's

Fig. 57.—A Fruiting Specimen of Drymophlæus oliviæformis.—See page 330.

berry-tree also, and Hound's-tree and Dogberry-tree, so, for some reason or other, its canine affinities seem to have been firmly settled in the popular mind.

The fruit of *C. Mas.* is at least more valuable than that of the other species, although it appears to have been one of the coarse fruits which Circe threw with acorns and Beech-mast to the companions of Ulysses after their transformation. When it is thoroughly ripe the flavor is sweet, and not entirely disagreeable, and in Germany and other European countries it is used in making preserves, robs and liquors. It is not probable that it will ever find much favor in this country, or that the Dogwood will be planted for its wood, which by the ancients was much esteemed for the shafts of javelins, and in later days for the cogs of wheels and butchers' skewers.

There is a variety in gardens with light-colored fruit, and others with brightly variegated leaves. These last, however, are feeble and ugly plants of no merit whatever, except in the eyes of those persons who delight in vegetable monstrosities and like to see a garden filled with "freaks" and converted into a vegetable dime museum, useful enough, perhaps, to physiologists, but abhorrent to the lover of the beautiful.

Among the native shrubs which are not well known to gardeners there is a southern species of Viburnum which deserves a place in the garden. This is *Viburnum molle*, a plant which is widely scattered through the southern states, and which just reaches New England on the Massachusetts islands of Nantucket and Naushon. In habit and in general appearance, in the shape of the leaves, in the flowers and in the fruit it bears a strong likeness to the Arrow-wood (*V. dentatum*). It is not a handsomer or in any way a better plant than that familiar species, and its value lies in the fact that it flowers two weeks or more later than the other Viburnums. It serves, therefore, to prolong the flowering period of one of the most useful and beautiful of the groups of hardy shrubs, and Mr. Dawson is preparing to get together a large supply of young plants, with a view of introducing them on a considerable scale in some parts of the Arboretum.

A word about *V. dilatatum*, described and figured in Garden and Forest (vol. iv., page 150) a few months ago, will not, perhaps, be out of order here. The plants have passed safely another winter, and have flowered more profusely than ever before. There can be little doubt that this is a perfectly hardy plant in this climate and that it has the capacity of adapting itself to its new surroundings. It will only be planted by people who desire to make their gardens beautiful in the late autumn and early winter; in habit and in foliage it is not better, and, indeed, not as good as our native *V. dentatum* or the species which has just been mentioned. The flowers, although abundant enough, are much smaller, and they fall almost as soon as they open; and this Japanese species has really little to recommend it as a flowering-plant. But the fruit is splendid, brilliant, abundant and long-hanging. There is no shrub of recent introduction that equals it in the beauty of its fruit, and there is hardly one among the innumerable varieties found in this collection which surpasses it. This certainly is one of the plants which need to be known only to become one of the most popular garden-plants of the country.

In another issue of these notes something will be said of the new species of Lilacs as they appear in the Arboretum, where most of them have now been successfully cultivated for several years.

Arnold Arboretum. *P. C.*

Hardy Plants.

It is, perhaps, true that no doubt now remains as to the hardiness of *Heuchera sanguinea*, but it ought to be known that there appear to be varieties in cultivation that are scarcely worth planting, being but poor in comparison to the better form that every garden should possess. If any reader is disappointed with his plants it is quite possible these are poor varieties, and, as seed is produced so freely, there is considerable variation in the seedlings, both in foliage and flowers, and some plants have been raised of exceptional merit.

One of the prettiest Campanulas we know is *C. punctata*, which has been in bloom several weeks; its flowers are large, on stems eighteen inches high, and are prettily spotted within; it is a nice companion plant for *C. macrantha*, with large, deep, blue flowers, and *C. Van Houttei*, with flowers of a paler blue. These three Bell-flowers are all in bloom together, are hardy and good perennials. *C. Van Houttei* does not seed, as it is said to be a hybrid, and must always be propagated by division.

A charming little Pea is *Lathyrus tuberosus*. It is now flowering abundantly, and the clusters of deep red flowers are very pretty. I am indebted to an English correspondent for my plants, and they seem perfectly contented and may prove hardy. The roots are tuberous, and much resemble those of the Ground Nut, *Apios tuberosa*. *L. tuberosus* appears to prefer to trail rather than climb; it is at present not more than eighteen inches high, and covered with flowers and buds.

We read much of hardy Gladiolus, but there are few indeed that are quite trustworthy in this respect. I have found *G. Saundersii* to be hardy and to come up and flower year after year when established. This, I believe, is well known, but we have had, during the past month, a pretty clump of *G. Byzantinus* in flower from bulbs that were planted in a border last fall and not protected in any way. The flowers of *G. Byzantinus* are very pretty and showy, and always early; in fact, the plants resemble *G. Colvillei* in every way excepting the color of the flowers, which is crimson, with white stripes on the lower part of the flower. Bulbs can easily be obtained in the fall from dealers, and, when once planted, need no further attention.

Nice clumps of the pretty Himalayan Primrose, *P. rosea*, were sent here last fall, and one of these was risked in the open ground in moist soil, and I fully expected this would be the end of it; but in May, after the potted plants had been past several weeks, the little rose-colored flowers began to peep above the ground, as is their way before the leaves grow, and our entire stock will be left out another year alongside of a little colony of *P. denticulata nivalis*, for which I am indebted to Herr Max Leichtlin, who sent me seeds last fall. Many of these plants are now in flower, which are pure white. The typical plant is well known to be hardy in Massachusetts, and is also of Himalayan origin, and we therefore have reason to hope that the variety will prove to be useful.

Achillea serrata plena, The Pearl, which gave promise last year of being a desirable border-plant and of great use for florists' work, has this season usurped more than a square yard of space to itself and will certainly have to be removed, for at its present rate of increase one can hardly contemplate its progress for another year without alarm. The danger is more threatening when we remember that last year each plant bore about three flower-stems, while now there are at least fifty to each clump, and this without any special cultivation or attention. It is a plant that must be placed where it cannot elbow its feebler neighbors out of their rightful places.

South Lancaster, Mass. *E. O. Orpet.*

Currants.

A careful re-examination of my Currants shows that the crop will be a moderate one, but it is profitable even when it does not exceed one-third of what the bushes ought to yield. For the best crop the ground must be in good tillage and kept well fed. It is absolutely essential to have good drainage. In wet soil the bushes heave in winters, and are not healthy, yet the Currant must have moisture. It is well to give them mulching after a second hoeing. Many of mine grow in a vineyard, between rows of Grapes, from which they get partial shade. These bushes do well.

In pruning I do no more than cut out weak new shoots and old wood that begins to be disbudded or decayed. I have never pinched back bearing shoots. I prefer to have high bushes, removing very low limbs, which often bend down with fruit and soil it. The top should be only reasonably opened to the sun.

Of the red varieties I place Versailles and Fay together at the head. The Versailles grows stronger and taller, and bears with me more profusely than Fay. In quality I find no difference. In size the Cherry is about identical; but the stems are inclined to be very short; the fruit in bunches, and not, therefore, nearly as profitable as the others.

Red Dutch, Prince Albert and Victoria do not differ very greatly in quality, but the real Red Dutch is much the smallest Currant. Prince Albert and Victoria are late and profitable. But the demand is almost universal for "Cherry" currants—a name that in market covers Fay and Versailles. For family use some of the later sorts are valuable.

The best in quality of all currants is White Grape; for the table it is delicious. Next to it I place Versailles and Fay. White Dutch is very rich, but smaller and more seedy. Its distinctive feature is its transparency, and a golden hue instead of white. For family use the White Grape should be planted largely.

The market demand for white currants is increasing steadily. It is a curious fact that, if scalded before pressing, the whites make a rich red jelly, not as dark as that from red currants, but very handsome. Those who make jelly should call for

white currants. Those who eat currants will soon learn to prefer the whites.

Black currants I have mostly discarded as unprofitable for market. One grower, with an acre, can supply the demand of a whole county. Lee's Prolific was heralded as a great advance on Black Naples; it is but little better. Crandall, a native fruit, is a sprawling grower. It is possible that we shall yet get from this stock, or by crossing, an improvement, but the Crandall, as I know it, can make no claim to superiority.

The currant-worm this year came in constant succession from May 12th to July 1st. Its feeding capacity is enormous. It is possible to kill vast numbers by examining the leaves for eggs before they hatch. The after-remedy is the well-known hellebore, sprayed or sprinkled on as soon as the worms begin. As many as four applications are often needed to keep down the pests. Guinea-hens eat the worms, and the currants too. If the bushes are defoliated one year the buds for the next year are debilitated, and a short crop will be produced.

The demand for currants has steadily increased with the demand for all other small fruits. After the cherry it is the most wholesome fruit for dyspeptics. It ships well, and it may remain long on the bushes. Unlike the strawberry, and especially the raspberry, it never hurries us. The opening price in market is from eight to ten cents a pound, wholesale. It seldom drops below five. I have this year given up baskets and sent all my currants out in crates. It will become the only method shortly. In the small boxes they are not crushed, and if picked wet they get dry, while in large baskets they mold.

Clinton, N. Y. *E. P. Powell.*

Notes from the Harvard Botanic Garden.

UTRICULARIA MONTANA.—This charming little "Bladderwort," first introduced to British gardens through a Mr. Ortgies in 1871, occurs freely in South America and the West Indian islands, being epiphytic on the mossy trunks of trees in the mountainous regions. In cultivation it is usually associated with Orchids, and this fact, with the peculiar structure of the flowers, leads many of the uninitiated to consider it a member of that family. It belongs, however, to quite a different order, *Lentibulaceæ*, and, although lacking the brilliant colors found in many Orchids, it is still pretty and interesting. The roots consist of numerous greenish tubers, with fine thread-like white rootlets. The pale green, petiolate, oblong-lanceolate leaves proceed from a cluster of these tubers, and are about six inches long. The scape, almost twice their length, is slender, erect, bearing from three to five flowers two inches in diameter, with a calyx of two triangular, cordate lobes, pale green, and corolla two-lipped, the upper one white and semicircular, the lower white in front and of oval outline, raised and blotched with yellow at the base, with an incurved spur, tapering to a fine point, beneath. The plant blooms at various periods of the year, but most freely during the early summer months. It thrives luxuriantly when suspended from the roof of a stove, close to the glass, in a basket containing crocks, peat and sphagnum in equal mixture, a quantity of the latter being added by way of surface-dressing. Water should be given freely at all seasons, and propagation is readily effected by division of the roots.

HYMENOCALLIS SPECIOSA AND H. OVATA.—When seen apart it is rather difficult to state in what particulars one of these plants differs from the other. Both bloomed together at this place recently, giving the opportunity of comparing their characters and merits. The latter plant may always be distinguished from *H. speciosa* by its leaves; these are from twelve to eighteen inches in length, oblong, broadly lanceolate, tapering to a petiole-like base one-third of their entire length, somewhat leathery, and of a pale, glaucous-green color. Those of the former, on the other hand, are fully six inches longer, oblong, obtuse, the stalk-like base one-half their length, dark green and succulent. The flowers, however, afford the safest means of identification. Those of *H. ovata* are pedicillate, while those of *H. speciosa* are as distinctly sessile. *H. ovata* flowers the most freely, and should be given the preference on this account. These plants require stove-treatment, but they should not be dried off as severely as most other bulbous rooted plants. They like rich soil, and, in summer, abundance of water, which may be varied occasionally with advantage by the application of liquid manure.

Cambridge, Mass. *M. Barker.*

Cucumbers.—Whether for pickles or slicing, if triangular in general shape of cross-section, as most of them are, the sides should be concave outward, instead of convex, the latter shape always indicating a hard and often bitter strip along the centre of each side where the seeds are attached. The fruit should also be nearly the same size throughout its entire length, any depression or seedless neck being indicative of hardness and bitterness of flesh at that point. In pickling cucumbers, the color is a very important point. It should be as deep, and extend as uniformly over the fruit, as possible. Contrary to the usual opinion, we do not think that coarse spines or prickles indicate crispness of flesh, as the most crisp and brittle sort we know of is the Parisian Pickling, in which the spines are exceedingly small.

Lettuces should be divided into two classes, according to the method of use. If to be served with oil or similar dressing, the leaf should be thick, brittle and crisp rather than tender, and should have a decided flavor—may even have, when first picked, a decided bitter taste, this disappearing when served. Most lettuces of this class form distinct heads. In the second class, the lettuce is cut up with vinegar, sugar, etc., and here tenderness is the great consideration and outweighs all others. No bitterness is admissible, and, as a rule, there is but little flavor. It is a disadvantage for lettuces of this class to form a distinct cabbage-like head, as the thin tender leaves lose all their crispness and beauty of color when crowded into a dense head. A cluster of large leaves is much more desirable.—*Professor W. W. Tracy, before the Michigan Horticultural Society.*

Correspondence.

The Red-flowered Dogwood.

To the Editor of GARDEN AND FOREST:

Sir,—A correspondent says (page 308): "There is a variety (of *Cornus florida*) in cultivation with pink, instead of white, flower-bracts, which is really a handsome plant, although considerable prejudice has been created against it by the absurd overcoloring of the bracts, as they appear in illustrations in the sale-lists of nurserymen who are seeking to make a market for it."

As our firm is responsible for these colored plates, permit us to say that when we received the proofs from Rochester, after our strict caution that nothing should be overwrought, we ourselves imagined they were overcolored. We cut some of the drawings, so that only the colored portions of the flowers should remain, and put them on the plants beside the real flowers, and no one could tell which was the painted flower and which was the genuine. This test will hold good to this time.

In justice to your correspondent, however, it may be said that the tint on transplanted plants, or plants not in vigorous health, is lighter than that on vigorous established specimens, and that, after a flower has been opened a few days, the bracts lose color. We are satisfied that he has seen them much paler than the colored plates represent, but if he will call on us when the plants are in blossom we shall be glad to have him test the pictures with the colors on our plants, and are sure he will acquit us of "absurd overcoloring" afterward.

Germantown, Pa. *Thomas Meehan & Sons.*

The Destruction of the Pines.

To the Editor of GARDEN AND FOREST:

Sir,—As one reared under the shadow of the eternal Pines, and loving them as only the objects familiar to our childhood are ever loved, as well as one of the great American people who are being defrauded of their birthright, I desire to protest against the wholesale destruction of the Pine-forests now going on all over the country, and particularly in my own state of Georgia. In traveling the other day from Macon to Brunswick I passed through the heart of what was once the great Pine region of the state, and, notwithstanding a long and sad experience of the ways of that most destructive of animals, "the great American developer," I was amazed and appalled at the work, not of destruction merely, but of utter annihilation and extinction that has been accomplished within the last twenty years. During the whole distance traversed of nearly 200 miles there is not left standing on either side of the railroad, as far as the eye can reach, a single stick of Pine fit for timber; and not only this, but Nature's generous and patient efforts to repair the waste are thwarted by the greed of the turpentine distiller, who comes along and destroys what the axe of the lumberman has left. I saw thousands of acres of saplings, some of them less than five inches in diameter,

stripped for turpentine, and thus practically destroyed. The Pine is a forgiving victim, and does its best to protect its destroyer from the effects of his own folly, for at the very feet of the dying parents a new generation of young conifers springs up that would, in time, repair the havoc made by the saw-mill and the turpentine-still, but their greedy enemy will not suffer it. Relentless as Herod, he slays the infant Pines by wholesale, and, like the stupid woman in the fable, who destroyed the goose that laid her golden eggs, he converts his God-given wealth of noble forest into a barren waste of sand and Palmetto scrub.

And thus, from Georgia to Maine—nay, to far-off Nova Scotia—the work of desolation goes on; from Georgia to Maine the mouldering, blackened stumps tell their mute tale of havoc and ruin. I have seen the Kennebec, from Augusta to Bath, so covered with logs that you could hardly see the water; poor, little, scrubby, spindling logs they were, too, that told their own sad tale of the slaughter of the innocents of the forest.

In most of the states there are game-laws for the protection of useful animals, and if these are compatible with democratic institutions, then, why not forest-laws as well? We have in Georgia a closed season for shad and partridges, during which it is unlawful to destroy or molest them, and the Legislature ought, at its very next session, to enact a law making it a misdemeanor, under heavy penalties, to cut or mutilate for the saw-mill or the turpentine-still any Pine-tree that has not attained a diameter of at least eighteen inches. If some such step is not taken, and taken speedily, the present generation will witness the virtual extinction of the most beneficent of all our noble forest-trees, the health-giving, balm-distilling, music-murmuring Pines.

Macon, Ga. *E. F. Andrews.*

Narcissi in Ireland and Elsewhere.

To the Editor of Garden and Forest:

Sir,—After reading, in the horticultural journals, the glowing accounts, by Mr. Burbridge, Mr. Hartland and others, of the luxuriance of the Narcissi in Ireland, it is comforting to read in the communication from John Quill (Garden and Forest, p. 322), of the same favored isle, that Daffodils should not grow too luxuriantly—but just luxuriantly enough. While his points seem to be commercial ones in trying to point out the superiority of Irish-grown bulbs, they are of interest to growers who have nothing except pleasure in view.

It is difficult to understand why, cultural skill being equal, Irish bulbs should be better than others, and no one doubts the skill of the Dutch in all that pertains to bulb-culture. If fat bulbs are unsatisfactory they would not long continue to grow them so. The early maturition of bulbs may be desirable for shipment, but is it of so much importance for other purposes? Take, as an extreme case, the Polyanthus section. These are, even now, scarcely showing signs of maturity, yet the Dutch send the bulbs here in immense quantities every year, firm, hard, bright-coated and sure to bloom. The early maturing of this section, at least, is apparently of not much consequence, for the Chinese bulbs sent here every fall show no signs of being ripened off; they are lifted with roots still alive, a coating of mud is daubed over these, and they are seemingly shipped as soon as this is dry. Surely no bulbs bloom more freely than these. On examination of a collection of Daffodils it will be found that they vary very widely in their time of dormancy and starting into growth. General rules will hardly apply here, but if early maturity is essential, it would appear that the Italian growers have by far the best of it, and they ought to lead the trade. Stock from Italy, however, is not so superior as to lead us to consider early ripening of first importance.

The buyer of new bulbs may well make the general rules to look over his new stock and carefully examine for maggots, and separate the soft ones for special care in the way of drier treatment than that needed by the main stock. Like the Dutch, not all of us "have the soil, you know," but we wish to know why Daffodils do uniformly well in one place and fail miserably in others. For an instance, *N. poeticus* grows finely in one place in my garden, blooming year after year; in all other places it grows and throws up flower-spikes which uniformly go blind. John Quill will have the thanks of many besides myself if he will tell us how to flower the Poet's Narcissus uniformly. Thanks to the commercial growers, we know pretty well the main points of the successful cultivation of the leading Narcissi, but, in my limited experience, I find that these points must be modified somewhat in practice. Ireland may be so fortunate as to possess large tracts happily adapted to the Daffodils, but there is no such uniformity, even in my small garden, every yard of which, I sometimes think, has different capacities. My little lot of Narcissi is not yet so happily planted as to show no failures, and I regret to say that I see no reason to think that I shall be successful with them by following any general rules, except keeping them vigorous and growing as long as possible. The time of blooming of Narcissi in the open with me seems to depend on the state of the season, not on the time of planting.

Elizabeth, N. J. *J. N. Gerard.*

A Weeping Apple-tree.

To the Editor of Garden and Forest:

Sir,—Some twenty years ago I planted an Apple-tree hedge, which it seemed best to remove after a few years. But one tree in the hedge had shown a marked tendency to droop its limbs, and was spared when the cutting took place. This tree now sweeps the ground over a space fifteen feet in diameter, and would spread farther if allowed. The habit is more marked than that of Weeping Linden, Cherry, Ash and other trees that I have planted. If the habit could be perpetuated by grafting, this variety would be an acquisition for those who have a fancy for such trees. I have no strong liking for them personally, and certainly they should always be used with caution.

Clinton, N. Y. *E. P. P.*

Recent Publications.

The Report of the Chief of the Division of Forestry deserves a more detailed notice than the mere mention it has received as a part of the Report of the Secretary of Agriculture. At the outset Mr. Fernow makes it clear how the work of the division has grown in the direction of giving information in answer to requests. To indicate the character of this part of the correspondence, a classified list of subjects is given, which covers a page. Under the heads of Technology, Forest-influences, Forest-planting, Forest-botany and Forest-management are embraced an immense range of topics, and the questions asked illustrate, in a striking way, the importance, variety and intimacy of the relations which forests bear to human society and life. Under the head of Statistics come inquiries as to the timber area of the United States, the present and future supply of various kinds of hardwood, and a hundred more, concerning which the information furnished must be very imperfect, because of a lack of means for acquiring it. We, therefore, agree with Mr. Fernow that it is a matter of regret that the opportunity afforded by the machinery of the eleventh census was not made use of to obtain some more definite data as to the present condition of our timber-resources. Since our forest-products amount in value, as raw materials, to not less than a quarter of the value of all the raw materials manufactured in the United States the subject is large enough to justify investigation. Mr. Fernow is certainly correct in saying that we ought to know, from decade to decade, what changes in our forest-area, and in their conditions, have taken place, just as we think it worth while to ascertain and compare the areas and crops of agricultural land, and such knowledge is needed more and more as the area of virgin timber-land shrinks and falls into the few hands which control the lumber-supply of the nation. When the division is asked to supply information as to where certain kinds of timber are found in abundance, or many other questions of this sort, only a very general and unsatisfactory reply can be made. In addition to the melancholy fact that the government does not know how much timber-land it possesses, nor what is the quality or the value of the timber on that land, we are reminded, too, that there is a total absence of forest-management on these timber-lands. Under such conditions the Division of Forestry is itself an incongruity. It seems absurd that there should exist a department whose function it is to give advice, which is never followed, about the management of a property which its owner, the government, does not pretend to manage, and about the extent and value of which the government has no definite knowledge, and makes no effort to obtain any such knowledge. All these discouraging conditions have been pointed out again and again by Secretaries of the Interior, as well as Chiefs of the Forestry Division, and yet our forest-resources are wasting away, and the protecting timber on our mountain slopes is disappearing, to the peril of the lives and property of those who live below, and nothing practical is done to quench incendiary fires or arrest the trespasser's axe.

Besides the information that has been imparted by letters in reply to specific inquiries, the Chief of the Division has addressed various associations, such as farmers' institutes and

forestry associations; circulars, too, have been issued, one, for example, giving directions for the growing of seedlings, and another for the treatment of young seedlings in the nursery. The important bulletin prepared by Mr. Tratman on the substitution of metal for wood in railway-ties, and issued during the year, has been previously noticed. The monographs on the life-histories of conifers are again promised. Many of them have been prepared for some time, and their publication should be no longer delayed. In connection with technological investigations, which are still in progress, this work is perhaps the most promising yet undertaken by the department.

One of the great difficulties in introducing good forest-management is the fact that no competent forest-managers can be found. Undoubtedly there will soon be a demand for men of training in this particular occupation, but it is difficult to see how forestry can be studied here to advantage so long as there is no practical illustration of good forestry, and, on the other hand, foresters imported from abroad will find it difficult to adjust their methods to the conditions existing here. Mr. Fernow, therefore, advises that young men with considerable preliminary preparation should go abroad and acquaint themselves, by study in the various academies and in practical work in the woods, with the theory and practice of forest-management. This might be accomplished in one or two years abroad by any one who is fitted with the necessary botanical and technical preparatory education. Persons who wish to prepare themselves for such a course may find very considerable facilities for this study in the libraries and museums of the department, and a list is also given to show what facilities are offered in the different states at the experiment stations and agricultural colleges on subjects which are necessary to a preliminary course in forestry.

Many other subjects are touched upon in this brief report which we have not space to notice in detail. Most interesting of these, perhaps, is the chapter on the wood-pulp industry, which has had a most rapid development in a few years. It certainly has not yet reached its full development, and perhaps Mr. Fernow is correct in saying that its expansion during the next few decades may bring revolutionary changes in our wood consumption, and modify to a considerable extent the practice of forest-management.

The report closes with the statement that increased appropriation will make it possible for the division to devote more time to missionary work, which is still sadly needed, before any intelligent forest-policy can be adopted in the United States.

Periodical Literature.

In the *Popular Science Monthly*, for July, Professor C. S. Ashley gives an account of "Our Agricultural Experiment Stations" which should interest those who see the reports from these stations constantly referred to in GARDEN AND FOREST. He traces their establishment to Samuel W. Johnson, now Professor of Agricultural Chemistry in the Sheffield Scientific School at New Haven, and Wilbur O. Atwater, now Director of the office of Experiment Stations in the National Department of Agriculture, who, having studied in the agricultural stations of Germany, made, in 1873, "the first direct effort to start an agricultural experiment station on this continent." This effort was made in Connecticut, and the first American station was there established, at Middletown, in the year 1875. In 1876 another was started in California, and in 1877 another in North Carolina, and in 1887, when the Hatch act passed Congress, there were eighteen stations spread through fourteen states. "This act made provision for an appropriation of $15,000 a year to each state or territory that would accept the trust, to establish a station in connection with its agricultural college, or to aid such stations already established. All of the states, except Montana, Washington and Idaho, have taken advantage of the act, as have also New Mexico, Arizona and Utah. Some have more than one, and some, who have only one regular experiment station, have organized one or more branch stations, located in different sections of the state. If these branch stations be excluded, there are now fifty-three experiment stations in the United States; while if these be counted, there are sixty-nine." Four hundred and twenty-three persons are now employed on the scientific staffs of these stations, including agriculturists, chemists, horticulturists, botanists, entomologists, veterinarians, meteorologists, biologists, microscopists, physicists, mycologists, viticulturalists and geologists. Each station is independent of the others, but a central bureau at Washington collects and publishes summaries of their work for the use of the public, special bulletins for the station-workers themselves, and reports and monographs of various kinds, and serves as a "medium of information and exchange." During the present year about $1,000,000 will be expended on these stations, and reports will be sent direct to nearly 400,000 farmers—and all this is a growth of the last fifteen years.

It seems odd to read that "the greatest obstacle which the stations have met has been a demand from the farmers for immediate results and a prejudice against the laboratory and its work"; but, we are told, "this gradually disappears as the farmer becomes more and more familiar with science." The way in which fraudulent fertilizers have been driven from the market by the action of the stations is named as one conspicuous instance of the practical good they have done, and others are the improvement in the methods of extracting sugar from cane in Louisiana and the introduction of the process of "Pasteurization" of wines in California, which does away with the use of antiseptics of any kind, while the new facts, theories and interests which the bulletins bring into the farmers' lives have, apart from their practical outcome, an educative and cheering influence which can hardly be overprized. Of course, at first it was difficult to get competent scientific workers for the various stations, but this hindrance is gradually disappearing.

In the same number of the *Popular Science Monthly* Mr. Joseph F. James writes of "Pollen and its Uses." We quote a single paragraph as a sample of the interest of all the others. "The immense number of pollen-grains," he says, "produced by a single flower apparently militates against the saying that Nature allows nothing to be formed but what is needful. It seems, indeed, a vast waste of material to have such a multitude of grains when so very few would answer the same purpose. In a single flower of the Peony there are about three and a half million grains; a flower of the Dandelion is estimated to produce nearly two hundred and fifty thousand; the number of ovules in a flower of the Chinese Wistaria has been counted and the number of pollen-grains estimated, and it is found that for each ovule there are seven thousand grains. While few fall below the thousands, many rise far above the Peony in point of numbers. These are the wind-fertilized flowers, and here Nature must provide for an immense loss of material. Darwin says that 'bucketfuls of pollen have been swept off the decks of vessels near the North American shore. . . . Kerner has seen a lake in the Tyrol so covered with pollen that the water no longer appeared blue. . . . Mr. Blackley found numerous pollen-grains, in one instance twelve hundred, adhering to the sticky slides, which were sent up to a height of from five hundred to a thousand feet by means of a kite, and then uncovered by means of a special mechanism.' The so-called showers of sulphur which have at times visited various cities, notably St. Louis, are nothing but clouds of yellow pollen blown from Pine or other forest-trees from some distant place. Perhaps, out of millions of grains thus scattered far and wide, only a single one may be of service. As if to compensate for this expenditure of pollen in some plants there are others in which the amount is very limited, and where nearly every grain is made to count. These are known as cleistogamous flowers, a term applied to those which always remain in the bud. These flowers are found in plants belonging to about sixty different genera of various orders, and generally in those species which at the same time produce the normal and conspicuous flowers. These large blossoms are often sterile, and the plant must depend upon the cleistogamous flowers for its seed. In the Wood-sorrel (*Oxalis acetosella*) these flowers have each about four hundred pollen-grains; the Touch-me-not (*Impatiens*) has only two hundred and fifty, and some Violets only one hundred. Even before leaving the anther-cells the grains in these cases have protruded their pollen-tubes; these seek the pistil and penetrate to the ovules. It might perhaps be supposed that, as the seed can be produced so easily, all plants would have cleistogamous flowers. But here comes into play the fact that that continual close fertilization is a great detriment, and not a benefit, and that it is better in the end that flowers produce an apparently wasteful amount of pollen and take the chances of a cross, than to be more economical and be perpetually self-fertilized."

As a companion to this article on pollen, the *Monthly* gives, from the *Cornhill Magazine*, one called "On the Wings of the Wind," which explains some of the methods used by plants in scattering their seeds. To hint at the variety of these methods we will merely quote the author's declaration that among the *Compositæ* alone "I can reckon up more than a hundred and fifty distinct variations of plan among the winged seeds known to me in various parts of Europe."

Notes.

A correspondent of the *Rochester Post Express* states that 80,000 plants of Roses, embracing 150 varieties, are growing in one block in the nurseries of Messrs. Ellwanger & Barry, while in another field near by there are 20,000 plants.

The growers of early fruit in California this year reaped a rich harvest. Early cherries, peaches, apricots and pears brought high prices in eastern markets, and some of the earliest peaches came from the northern part of the state.

Number one of *Meehan's Monthly* was issued on the first of July. It contains a colored plate of *Rhododendron maximum* and sixteen pages of reading-matter, and resembles very much, in typographical appearance, the *Gardeners' Monthly*, when under Mr. Meehan's direction.

Monsieur A. Lothelier, in a note recently laid before the French Academy of Sciences, declared his belief that in *Robinia Pseudacacia*, *Ulex Europæus*, *Berberis vulgaris* and other plants the formation of spines is dependent upon the action of light. If grown where the light is not strong, plants of this sort show few spines, while when the light is more powerful the spines are more numerous, better developed and more markedly differentiated.

Les Cypripedium et Genres Affinés is the title under which Angiolo Pucci publishes, in Florence, a volume of 218 pages, a history of Cypripedium, with a description of the species and the methods used for their successful cultivation. It is a French translation, or rather an adaptation, of Veitch's "Manual of Orchids," already noticed in these columns, and will be found interesting and valuable to the cultivators of these popular plants who are not acquainted with the English language.

The *Société Nationale d'Horticulture de France*, the chief horticultural association of that country, now includes nearly 2,500 members, of whom 914 reside in Paris, 379 in the Department of the Seine, and 982 in the remaining parts of France, while 175 are foreign associates, some of them living in lands as distant as China. The Society is divided into six committees: one each for fruit-culture, for the culture of ornamental trees, for horticulture proper, for vegetable culture, for artistic gardening, and for garden utensils.

The famous liqueur called "Chartreuse," from its makers, the monks of the Carthusian order, is composed of brandy, flavored by a mixture of herbs, the secret of which is carefully kept within the bosoms of the order. The Benedictine monks manufacture a similar beverage which, likewise, is called by their name; and now, we are told, the monks of Tre Fontane, near Rome, the place which has recently become famous for its vast plantations of Eucalyptus trees, are introducing a liqueur, the characteristics of which are explained by the name selected for it—"Eucalyptica."

The Proceedings of the American Forestry Association, at its late meetings in Quebec and Washington, have been published in a neat pamphlet of 112 pages. Summaries of several of the papers have already been given in this journal, but the matter is all well edited and of excellent quality. In a prefatory note it is stated that the association does not hold itself responsible for the views expressed at its meetings or published afterward in its reports. Its platform is offered, however, for the discussion of all important questions connected with forestry, and the encouragement of such discussion is most commendable. Indeed, this is the only way to promote the aims of the society, which are (1) Education, or leading the public mind to see the necessity of prompt and thorough reform in the treatment of American forests, and (2) Legislation for the enactment of proper laws under which to accomplish this reform. The association now has an earnest membership from thirty states and two provinces of Canada, and it is in every way worthy of public support. This report deserves a wide circulation, and persons who are not members of the association can secure copies of it for fifty cents by addressing Charles C. Binney, 218 South 4th Street, Philadelphia.

Writing from Chicago, with regard to the preparations for the World's Fair, a correspondent of the *American Architect and Building News* recently said that the work of dredging was being pushed with all speed, so that it was expected that the lagoon would be completed by the end of June, and also the grading which would make the sites ready for the foundations of all the buildings. "Over 900 men," he continued, "have been at work in this especial department, and three large steam-dredges have been constantly at work. Over 100,000 plants have been shipped to the place and are being cared for by a large force of gardeners. The proposed wooded island is already converted into a nursery, while on one part of the island it is proposed to lay out a primeval swamp, such as formerly occupied the site of Chicago, the plants for the purpose being already on the grounds. Three greenhouses have already been built and a stovehouse for Palms, and preparations are being made to receive wild herbaceous and aquatic plants from all parts of the country. Sixty thousand Willow cuttings are already in the ground, 10,000 of them being sent as a gift by the Park Commissioners of Buffalo, New York. Mr. Olmsted has presented the Exposition with Bamboos from Asheville, North Carolina, near to the park he is there laying out for one of the Vanderbilts."

The new body incorporated in Massachusetts by Chapter CCCLII. of the Acts of the last Legislature "for the purpose of acquiring and opening to the public, under suitable regulations, beautiful and historical places and tracts of land within this commonwealth," has organized by adopting a code of by-laws and electing as its first President the Honorable George F. Hoar, of Worcester. The Honorable William S. Shurtleff, of Springfield, is Vice-President, Mr. George Wigglesworth is Treasurer, and Mr. Charles Eliot is the Secretary. The direct management of the affairs of the corporation is vested in a Board of Control consisting of Mr. Philip A. Chase, of Lynn; Mr. Charles S. Sargent, of Brookline, and Dr. Henry P. Wolcott, of Cambridge, with whom are associated the Secretary and Treasurer. The corporation is empowered to acquire by gift, devise or purchase, beautiful and historical places in Massachusetts, and to hold the same free of taxes as long as the reservations are open to the public. Under the by-laws any person who subscribes $10 to the funds of the corporation becomes entitled to receive the annual report and an invitation to an annual conference with the Trustees. Clubs and societies may become entitled to send a delegate to the annual conference on the same terms, and it is expected that the Historical and Natural History Societies and the Village Improvement Societies of the state will in this way b able to assist a cause in which they are naturally interested Any man or woman, whether a citizen of Massachusetts or not, who desires to take part in the work of this corporation may do so by communicating with the Treasurer, Mr. George Wigglesworth, 89 State Street, or with the Secretary, Mr. Charles Eliot, 50 State Street, Boston.

The last part of the *Contributions from the United States National Herbarium*, being Volume II., No. 1., to reach us contains the first installment of Professor Coulter's Manual of the Plants of western Texas, and embraces the *Polypetalæ*. The purpose of the manual, the author tells us, is to bring together and make easily accessible the scattered information which exists concerning the flora of western Texas, a region of great botanical interest as the meeting-place of the plants of the true North American flora with the peculiar forms of northern Mexico. The manual is intended to include all Texas plants found west of the ninety-seventh meridian. The introduction of useful analytical keys, local names, and the mention of the economic uses of the plants, greatly increases the value of the work which has been prepared, not only as a reference-book for botanists, but as a hand-book for Texas students, for which purpose it seems admirably adapted. It is to be regretted that Professor Coulter has not adopted some uniform system of nomenclature, and it is not easy to understand why, for example, if Marshall's name for the Fragrant Sumach, *Rhus Canadensis*, is to be taken up, his names for the Sweet Buckeye and for the Chicksaw Plum should be passed by in favor of much later ones. The supposition is that an attempt was made to follow the plan of nomenclature adopted in the last edition of "Gray's Manual," of which Professor Coulter was one of the editors, and in which appears a considerable number of plants under names sanctioned by long usage, although not the oldest, and, therefore, in danger of change at the hands of subsequent authors. But even the names of the "Manual" are not always adopted in this new work, for, in turning over the pages very hurriedly, the eye falls on *Cratægus arborescens*, Ell.—a plant which was correctly referred, by Watson and Coulter only last year, to the *Cratægus viridis* of Linnæus. Such details, of course, do not detract from the working value of a manual of this character, except in so far as they continue and extend the confusion of botanical nomenclature and complicate synonymy.

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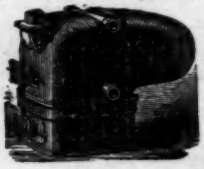

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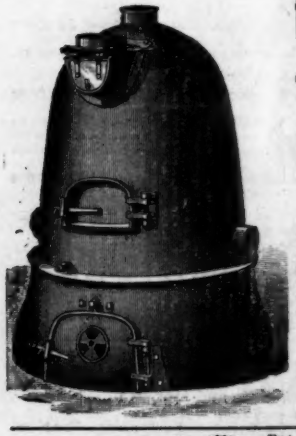

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